



Operations Monitoring Report
Fourth Quarter FY09

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I. Executive Summary

A review of the fiscal year 2009 (FY09) Fourth Quarter performance and contract obligations between Nashville District Energy, LLC (CNDE) and the Metropolitan Government of Nashville and Davidson County (Metro) is presented in this report by Thermal Engineering Group, Inc (TEG). The status of the available funds for all active capital construction and repair and improvement projects are also presented. For the fiscal year 2009, CNDE has satisfactorily met all of the contract obligations to Metro and has had no contract violations.

For the Fourth Quarter FY09, the chilled water sendout decreased by approximately 5% over the previous Fourth Quarter (FY08), and the sales decreased by approximately 3%. However, the number of cooling degree days increased by approximately 9% over the same periods. The peak chilled water demand for the current quarter is 16,000 tons with a cooling load factor for the quarter of approximately 47%.

The steam sendout is approximately 8% lower this quarter than the previous Fourth Quarter, and steam sales are down by approximately 11%. The number of heating degree days for the current quarter were the same as in the previous Fourth Quarter. Steam system losses were approximately 30% of the sendout which was approximately 7% less than in the previous Fourth Quarter. The peak steam demand for the current quarter is 75,500 pounds per hour, which represents a 3% decrease from the previous Fourth Quarter. The heating load factor for the quarter is approximately 34%, which is a decrease of approximately 5% from the previous Fourth Quarter.

The fiscal year saw a general decrease in sales and sendout for both chilled water and steam over the previous fiscal year. This decrease occurred during a year that experienced a significant decrease in cooling degree days (approximately 10% fewer CDD) and an increase in heating degree days (approximately 5% more). Significant decreases in system energy and mass losses also occurred with a noted 150% decrease in EDS city water make-up over the previous fiscal year.

The Energy Generating Facility (EGF) performance continues to surpass the System Performance Guarantee (Guaranteed Maximum Quantity or GMQ) levels. The chilled water and steam plant electric consumptions continue to perform considerably lower than the guaranteed levels. The steam plant fuel efficiency decreased marginally from the previous Fourth Quarter. The total water consumption for the steam and chilled water plants has decreased approximately 7% from the previous Fourth Quarter and approximately 14% over the previous fiscal year. This improvement is due, in part, to the extensive repairs to the condensate return system and improved EGF water chemistry.

Work continued on DES Capital and Repair & Improvement Projects during the Fourth Quarter of FY09. Four projects were substantially completed during the Fourth Quarter FY09 (DES044, DES 0441, DES 046 and DES056) with close-out for all of these expected to occur in the First Quarter

FY10. These capital projects are being funded by resources from the previous years' capital budget accounts. Repair and Improvements to the EDS continue as scheduled.

The system operating costs were \$20,653,610 for the fiscal year which is a 5.1% increase over the previous fiscal year. The customer revenues from the sales of steam and chilled water was \$17,702,957 which equates to a 1.4% decrease over for the previous fiscal year. This total revenue includes the unpaid balance for service to the 401 Union Building (JP Partners) of \$56,734 (as of the end of FY09). Service to this customer was disconnected during the Fourth Quarter FY09.

The total transfers from Metro totaled \$3,217,986 (approximately 124% of budget), an approximate 46.7% increase over FY08. However, this value represents two bond interest payments that were not paid in previous fiscal years that should have been totaling \$629,837. Without these additional payments, the total transfers were \$2,588,149 (approximately 99.6% of budget) which represents a 18% increase over FY08. The exclusion of these additional payments also reduces the system operating costs to \$20,023,773 for FY09 representing only a 1.9% increase over FY08.

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II. Energy Distribution System Sales and Performance

This section of the report discusses and presents performance information regarding the operation of the EGF for the periods described. Charts and tabular data are also presented to provide a more detailed description of the actual EGF performance.

A. Chilled Water

1. Sales and Sendout

A comparison for the Fourth Quarter chilled water sales is shown in Figure 1. This data reflects a decrease in sales for the current quarter over the same quarter of the previous fiscal year even though the number of cooling degree days increased by 9% this quarter. The decrease in sales could be attributed to fluctuations in the weather and in customer energy conservation measures.

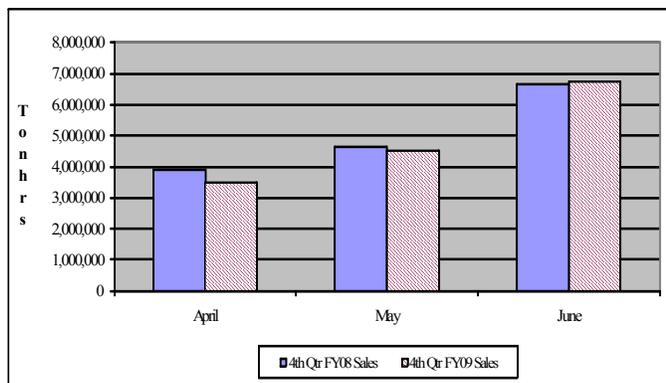


Figure 1. Fourth Quarter FY09 Chilled Water Sales Comparison

The peak chilled water demand for the current quarter is 16,000 tons. The cooling load factor for the current quarter, relative to sendout, is approximately 47% and is 10% less than in the previous Fourth Quarter.

Figure 2 shows the chilled water sales, sendout and losses for the previous twelve months. The losses on this figure are defined as the difference in tonhrs per month between the recorded sendout and sales values and represent the total energy loss for chilled water in the EDS. The number of cooling degree days per month are also tracked for comparison.

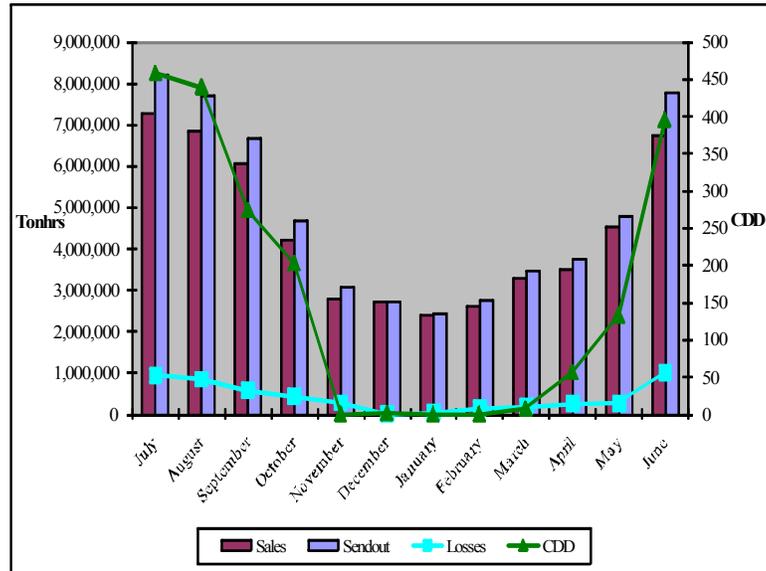


Figure 2. Chilled Water Sales, Sendout, Losses and CDD for the Previous 12 Months

2. Losses

A comparison of the total, chilled water energy losses in the EDS for the Fourth Quarter is shown in Figure 3. These losses are the difference in chilled water sendout and sales. The energy loss is caused by a combination of the loss in the mass of chilled water and a net heat gain into the chilled water piping. The increase in supply temperature between the EGF and the customers is typically less than 1°F.

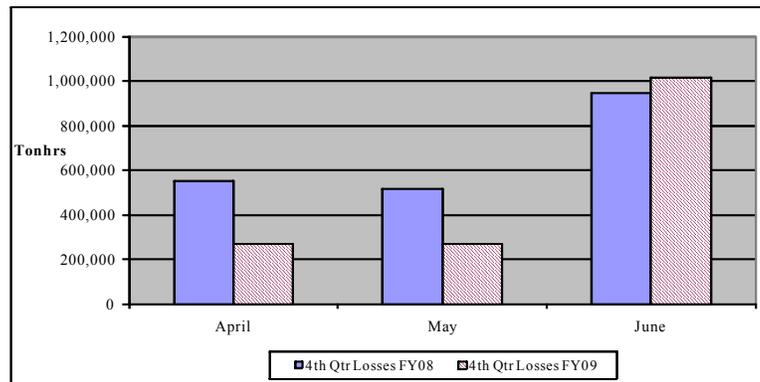


Figure 3. Chilled Water System Loss Comparison for the Fourth Quarter FY09

A decrease in the mass loss is noted with a comparison between the Fourth Quarter EDS city water make-up for FY08 and FY09 of approximately 22%. The energy losses also decreased by approximately 23%. The make-up to the cooling towers also decreased by approximately 6%. The number of cycles of concentration in the condensing water circuit increased in the Fourth Quarter by approximately 10% over the previous Fourth Quarter. The average number of cycles was 6.2 in the Fourth Quarter FY09, which reflects an improvement in EGF water chemistry. The overall city water make-up comparison for the chilled water system is shown in Figure 4.

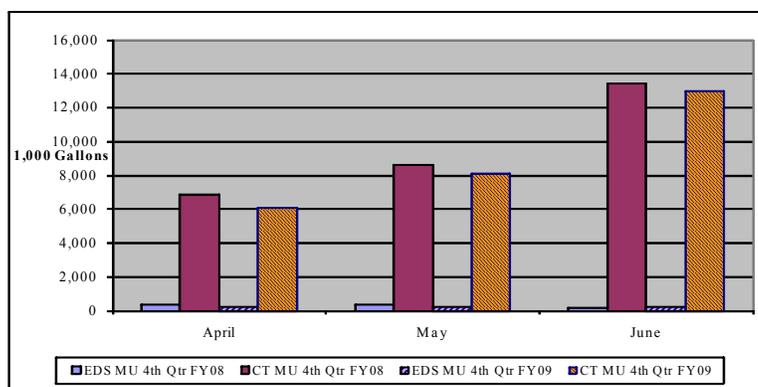


Figure 4. Chilled Water System City Water Usage Comparison

3. Performance

The performance of the chilled water aspect of the EGF is presented by the following two charts, Figures 5 and 6, for FY09. Under the management of CNDE, the System Performance Guarantee levels as described in the ARMA are being achieved quite satisfactorily.

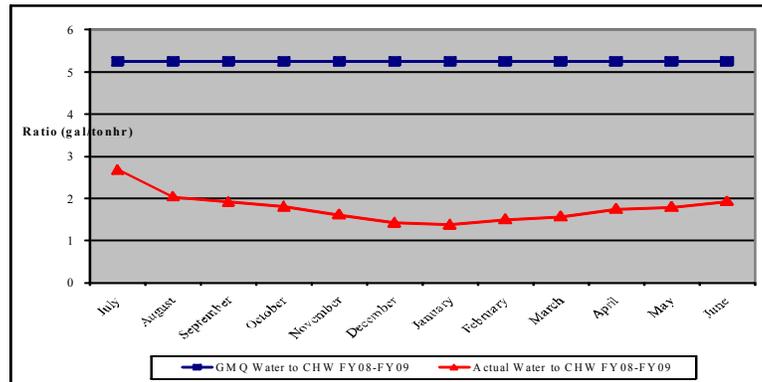


Figure 6. Chiller Plant Water to Electric Performance Guarantee Comparison of Current Quarter Comparison Months Previous 12 Months

The chilled water allocation of the electric consumption falls under the GMQ limit of 1.055 kWhr per tonhr for the current quarter, and no excursion is reported for the current fiscal year. The electric usage for the current quarter decreased approximately 4% over the Fourth Quarter for FY08. The actual chilled water plant water conversion factor is approximately 3% less than in the previous Fourth Quarter. The consumption of city water for the chiller plant for the current quarter is approximately 6% less than that for the previous Fourth Quarter.

B. Steam

1. Sales and Sendout

The steam sendout decreased by approximately 8% over the previous Fourth Quarter (FY08), and the sales also decreased by approximately 11%. The steam system losses decreased by approximately 1%. The number of heating degree days were the same as the previous Fourth Quarter. A comparison for the Fourth Quarter steam sales is shown in Figure 7.

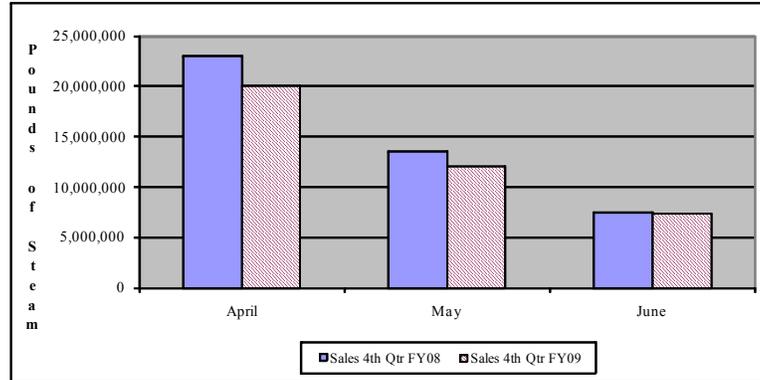


Figure 7. Fourth Quarter FY09 Steam Sales

Figure 8 shows the steam sales, sendout and losses for the previous twelve months. The losses on this figure are defined as the difference in pounds per month between the recorded sendout and sales values and represent the total mass loss in the EDS between the EGF and the customer meters.

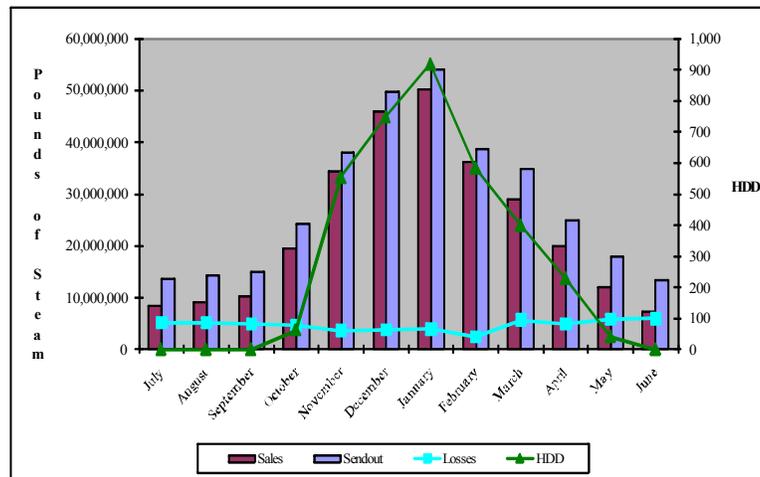


Figure 8. Steam Sales, Sendout, Losses and HDD for the Previous 12 Months

The peak steam demand for the current quarter is 75,500 pounds per hour, which is approximately 3% lower than the peak demand for the previous Fourth Quarter. The heating load factor for the current quarter, relative to sendout, is approximately 34%

and represents a decrease in the load factor over the previous Fourth Quarter of approximately 5%.

2. Losses

A comparison of the total steam mass losses in the EDS for the Fourth Quarter is shown in Figure 9. The mass loss is caused by the heat loss in the EDS between the EGF and the customer meters, resulting in a mass loss at steam traps. Faulty traps, steam leaks or meter error could also be a contributing cause of these losses. The total losses for the current quarter are approximately 1% less than in FY08.

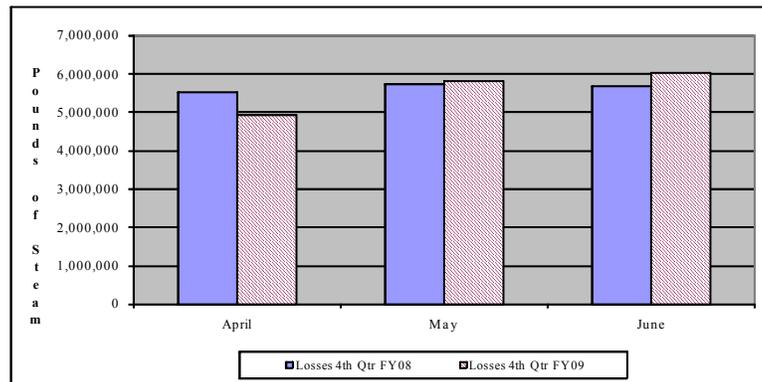


Figure 9. Fourth Quarter FY09 Steam System Losses

The amount of city water make-up (MU) to the steam system consists of the loss in mass between the EGF and the customers, in the condensate return from the customers to the EGF and losses at the EGF. This data is shown in the comparison of Fourth Quarter data in Figure 10. Figure 10 depicts a decrease in city water make-up to the steam system of approximately 11% for the current quarter.

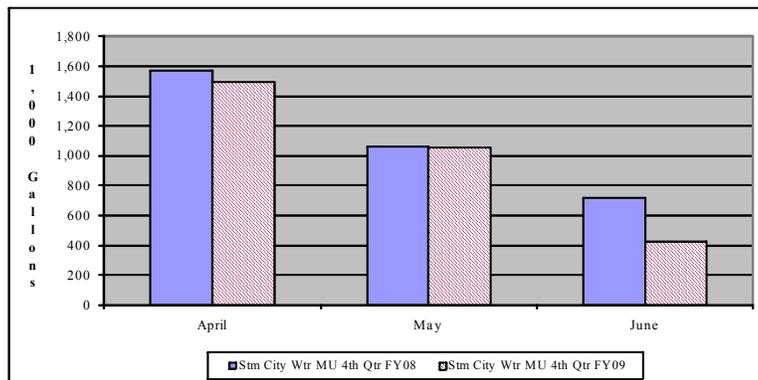


Figure 10. Fourth Quarter FY09 Steam System City Water Make-up

3. Performance

The performance of the steam system aspect of the EGF is presented by the following three charts, Figures 11, 12 and 13. Under the management of CNDE, the System Performance Guarantee levels as described in the ARMA are being achieved satisfactorily except for a single excursion in the electric consumption in June 2009. The fuel consumptions remain below the GMQ for the quarter. The electric usage for the current quarter is approximately 5% less than in the previous Fourth Quarter.

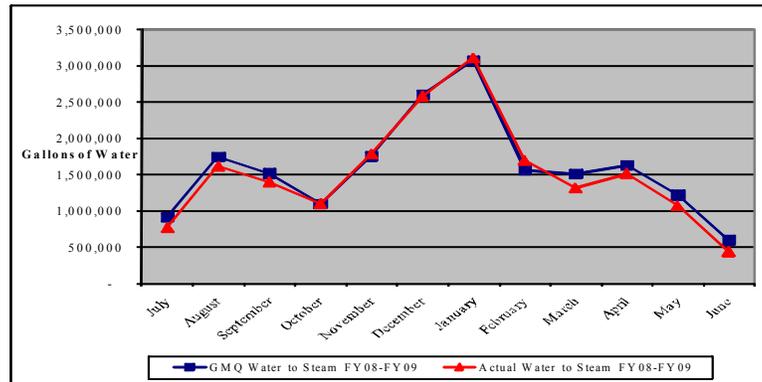


Figure 11. Steam Plant Electric Consumption Performance Guarantee Comparison for the Previous 12 Months

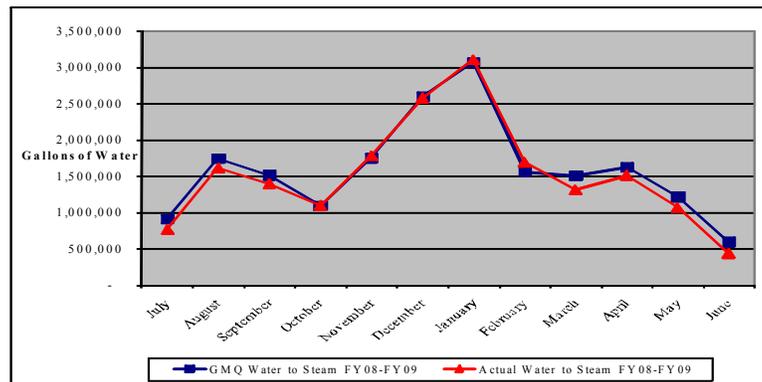


Figure 12. Steam Plant Water Consumption Performance Guarantee Comparison for the Previous 12 Months

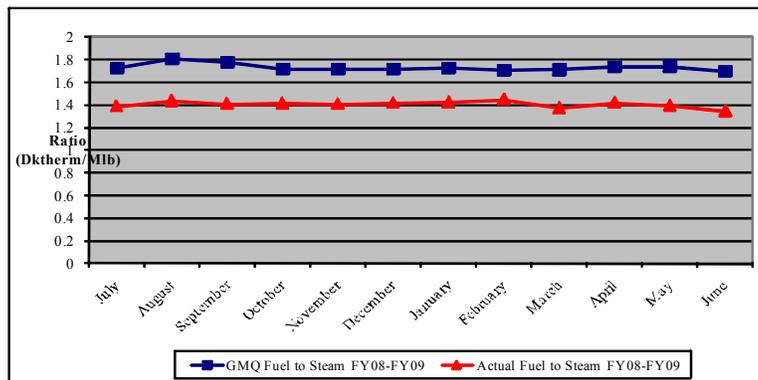


Figure 13. Steam Plant Fuel Consumption Performance Guarantee Comparison for the Previous 12 Months

C. Contract Guarantee Performance

The production and sales performance for the EGF and EDS are summarized in Table 1 for the current quarter and for the fiscal year. Additional parameters, such as cooling tower blowdown and peak demands are listed in this table, as well. Table 2 presents the Fourth Quarter comparison of the Guaranteed Maximum Quantities (GMQ) of the criteria commodities (fuel, water and electricity).

Table 1. Fourth Quarter and Fiscal Year Production, Sales and Consumption Summary

	Unit	Fourth Quarter FY09	Fourth Quarter FY08	*Percent Difference	Total Year FY09	Total Year FY08	*Percent Difference
	days	91	91	0.00%	365	366	-0.27%
Total Electric Use	kWhrs	12,264,289	12,773,117	-3.98%	44,263,344	49,646,058	-12.16%
Chilled Water	kWhrs	12,105,405	12,605,432	-3.97%	43,399,970	48,736,023	-12.30%
Steam	kWhrs	158,884	167,685	-5.25%	863,374	910,035	-5.40%
Total Water Use	kgal	30,831	33,124	-6.92%	121,136	138,599	-14.42%
Total Chilled Water	kgal	27,848	29,774	-6.47%	102,967	116,961	-13.59%
EDS Make-up	kgal	691	881	-21.57%	2,553	6,372	-149.59%
Cooling Towers	kgal	27,157	28,893	-6.01%	100,412	110,589	-10.14%
Calc CT Evaporation	kgal	23,382	24,540	-4.72%	85,432	92,182	-7.90%
CT Blowdown	kgal	3,775	4,353	-13.28%	14,980	18,407	-22.88%
Calc # Cycles		6.19	5.64	9.87%	5.70	5.01	12.19%
Steam	kgal	2,983	3,350	-10.96%	18,169	21,638	-19.10%
Total Fuel Use	mmBTU	78,123	84,553	-7.60%	477,760	497,244	-4.08%
Natural Gas	mmBTU	78,057	84,537	-7.67%	477,432	496,541	-4.00%
Propane	mmBTU	66	16	N/A	328	703	-114.33%
Condensate Return	kgal	3,904	4,243	-7.99%	24,884	24,557	1.31%
	lbs	31,841,254	34,607,718	-7.99%	202,953,891	200,285,655	1.31%
Avg Temp	°F	164.3	167.0	-1.60%	160.6	170.0	-5.86%
Sendout							
Chilled Water	tonhrs	16,315,600	17,254,400	-5.44%	58,032,400	66,555,900	-14.69%
Steam	lbs	56,175,000	61,013,000	-7.93%	338,984,000	354,674,000	-4.63%
Peak CHW Demand	tons	16,000	15,200	5.26%	16,100	17,400	-8.07%
Peak Steam Demand	lb/hr	75,500	77,625	-2.74%	126,625	122,531	3.23%
CHW LF		46.69%	51.98%	-10.17%	41.15%	43.55%	-5.83%
Steam LF		34.07%	35.99%	-5.34%	30.56%	32.95%	-7.83%
Sales							
Chilled Water	tonhrs	14,763,928	15,241,424	-3.13%	52,965,087	58,854,190	-11.12%
Steam	lbs	39,424,030	44,079,733	-10.56%	282,525,256	285,066,506	-0.90%
Losses							
Chilled Water	tonhrs	1,551,672	2,012,976	-22.92%	5,067,313	7,701,710	-51.99%
Steam	lbs	16,750,970	16,933,267	-1.08%	56,458,744	69,607,494	-23.29%
		29.82%	27.75%	7.44%			
Degree Days							
CDD		583	535	8.97%	1,963	2,154	-9.73%
HDD		270	270	0.00%	3,531	3,346	5.24%

*positive percent difference values imply an increase from FY08 to FY09

Table 2. Fourth Quarter and Fiscal Year Performance Guarantee Comparison for Steam and Chilled Water

GMQ Calculations	Unit	Fourth Quarter FY09	Fourth Quarter FY08	*Percent Difference	Total Year FY09	Total Year FY08	*Percent Difference
Steam							
GMQ Elec Conversion	kWhr/Mlb	6.00	6.00		6.00	6.00	
Electric Conversion	kWhr/Mlb	4.03	3.80	5.94%	3.06	3.19	-4.46%
GMQ Plant Efficiency	Dth/Mlb	1.726	1.726		1.733	1.721	
Plant Efficiency	Dth/Mlb	1.391	1.386	0.35%	1.409	1.402	0.53%
Actual %CR		56.68%	56.72%	-0.07%	59.87%	56.47%	5.68%
Avg CR Temp	°F	164	167	-1.60%	161	170	-5.86%
GMQ Water Conversion	gal	3,431,133	3,723,226		19,180,665	21,769,233	
Water Conversion	gal	3,012,830	3,383,500	-10.96%	18,350,690	21,854,814	-19.10%
Chilled Water							
GMQ Elec Conversion	kWhr/tonhr	1.055	1.055		1.055	1.055	
Electric Conversion	kWhr/tonhr	0.820	0.827	-0.86%	0.819	0.828	-1.06%
GMQ Water Conversion	gal/tonhr	5.25	5.25		5.25	5.25	
Water Conversion	gal/tonhr	1.89	1.95	-3.44%	1.94	1.99	-2.22%

*positive percent difference values imply an increase from FY08 to FY09

D. Operating Costs

The operating costs for the DES are comprised of the fixed and variable costs. The fixed costs are those expenditures that do not vary depending on the amount of steam or chilled water produced or sold to the customers. These costs include the management fee to CNDE, debt service payments on the bonds and engineering and administration costs. The variable costs are dependent on the amounts of steam and chilled water produced and sold to the customers. These costs include the utility and chemical treatment costs. The vast majority of the costs incurred for the operation of the DES are passed onto the customers in the form of the demand charges (fixed costs) and energy charges (variable costs). A summary of the total operating costs for FY09 are shown in Table 3.

The revenues shown reflect the charges and payments to the customers for their respective steam and chilled water service. The difference between the total costs and revenues from the customers is the shortfall that must be paid by Metro. The shortfall exists, in part, due to the remaining capacity at the EGF that was included in the original construction and remains unsold. This capacity is available for potential future customers.

For FY09, the total operating costs were \$20,653,610 which is a 5.1% increase in the operating costs from FY08. The customer revenues decreased from FY08 to FY09 by 1.4% to \$17,702,957. This decrease in costs and revenues resulted in a net increase in the Metro Funding Amount (shortfall) by 46.7% over the previous fiscal year to \$3,217,986 (post True-up). However, this MFA includes bond interest payments that were not paid in previous fiscal years but should have been totaling \$629,837. Without these additional payments, the MFA for FY09 is \$2,588,149 which represents an 18% decrease over FY08.

Table 3 shows the expenses to date and a comparison to the FY09 budget. Due to a discrepancy in the engineering charges to the customers, the following table reflects an adjustment in the budgeted engineering costs over previously issued budgets for FY09.

Table 3. FY09 Post True-up Expenses

Item	FY09 Budget	FY09 Post-True up	% Difference to Budget
FOC: Basic + C/O 6C	\$ 3,852,200	\$ 3,852,170	0.00%
FOC: 9th Chiller	\$ 36,100	\$ 36,095	-0.01%
FOC: Change Order 6A	\$ 71,300	\$ 71,263	-0.05%
FOC: Change Order 6B	\$ 62,400	\$ 62,388	-0.02%
Chemicals	\$ 156,500	\$ 150,209	-4.02%
Engineering	\$ 56,620.00	\$ 21,345	-62.30%
Insurance	\$ 42,400	\$ 29,722	-29.90%
Marketing: CEPS Sales Activity	\$ 27,000	\$ 5,006	-81.46%
Metro Marketing	\$ 52,900	\$ 7,698	-85.45%
Incentive Payments	\$ 30,100	\$ 9,878	-67.18%
Project Administration	\$ 24,200	\$ -	-100.00%
Metro Incremental Cost	\$ 568,000	\$ 374,174	-34.12%
Water/Sewer	\$ 681,600	\$ 402,901	-40.89%
Natural Gas/Propane	\$ 6,575,300	\$ 5,291,103	-19.53%
Electricity	\$ 4,437,300	\$ 4,312,285	-2.82%
EDS Repair & Improvement	\$ 171,400	\$ 137,575	-19.73%
EDS Surcharge	\$ 68,500	\$ -	-100.00%
* Sub-total Operations	\$ 16,913,820	\$ 14,763,812	-12.71%
2002 Bonds	\$ 4,361,800	\$ 4,362,360	0.01%
2005 Bonds	\$ 631,600	\$ 1,433,498	126.96%
FY07 Projects	\$ 227,800	\$ 224,150	-1.60%
FY08 Projects	\$ 220,500	\$ -	n.a.
Debt Service Interest Revenue	\$ (72,300)	\$ (227,951)	n.a.
Oper. Reserve Funding Deposit	\$ 96,800	\$ 97,740	0.97%
* Sub-total Debt Service	\$ 5,466,200	\$ 5,889,798	7.75%
* Total Expenses	\$ 22,380,020	\$ 20,653,610	-7.71%
Customer Revenues	\$ 19,741,800	\$ 17,702,957	-10.33%
Project Admin. Revenue	\$ 24,200	\$ -	
True up Credits to Customers	\$ (16,620.00)	\$ (267,333)	
Total Metro Funding Amount	\$ 2,597,400	\$ 3,217,986	23.89%

The DES serves 27 customers and 40 buildings in downtown Nashville. These customers are divided into three categories: 1) Private customers who privately own their buildings, 2) State of TN owned buildings and 3) Metro owned buildings. A summary of the annual costs for each of these three categories is presented in Table 4. These values include late fees and

penalties and the unpaid balance for 401 Union Building (JP Partners) of \$56,734 (as of the end of FY09).

Table 4. FY09 Customer Revenues

Building	Chilled Water			Steam		
	Total Cost	Consumption (tonhrs/yr)	Unit Cost (\$/tonhr)	Total Cost	Consumption (Mlb/yr)	Unit Cost (\$/Mlb)
Private Customers	\$ 3,711,129.40	18,687,678	\$ 0.1986	\$ 2,293,680.80	81,857	\$ 28.020
State Government	\$ 3,259,360.54	16,504,071	\$ 0.1975	\$ 2,970,702.94	101,166	\$ 29.365
Metro Government	\$ 3,113,383.86	17,784,586	\$ 0.1751	\$ 2,837,803.29	100,048	\$ 28.365
New Customers	\$ 1,273,357.26	6,747,129	\$ 0.1887	\$ 558,150.43	23,461	\$ 23.790
Total	\$ 10,083,873.80	52,976,335	\$ 0.1903	\$ 8,102,187.03	283,071	\$ 28.622

Total Revenue	\$	18,186,061
FY08 True-up Credit	\$	(473,916)
FY09 Net Credits/Fees	\$	(9,188)
Net Customer Revenue	\$	17,702,957

III. EGF Operations

Items relating to the facility operations presented herein are derived from the monthly reports issued by CNDE for FY09. Communication between TEG and CNDE continues to be excellent, and CNDE has reported and managed all EGF operations satisfactorily and according to the ARMA with no contract violations.

A. Reliability

The principle issues surrounding the reliable operation of the EGF relates to the ability to operate without significant interruption, exclusive of planned outages, and disruption of service to the customers. CNDE reported several disruptions in service during the quarter, but the duration of each was short and had negligible apparent effects on the customers. The reliability issues are summarized in this section.

- There were no excursions or outages during April.
- A scheduled steam outage occurred on May 25 - 26. Due to the repair of the buried anchor outside of MH K which failed during the outage, the steam pressure fluctuated on May 29.
- An electrical problem on June 22 and 23 with one of the NES 69kV distribution systems caused two separate momentary losses of electrical power at the EGF. Service was only momentarily disrupted due to parallel electric service connections feeding the EGF.
- The remaining significant disruption in service to the customers was a scheduled outage of the chilled water system which occurred on January 21 through 22, 2009, to replace some valves at the EGF.

B. Efficiency

The operation of the EGF satisfied the guaranteed levels for all commodity usage during the quarter. There were no significant excursions above the guaranteed levels for the Fourth Quarter. A more detailed discussion of the contract guarantee performance was presented previously in this report.

C. Environment, Health and Safety

No environmental violations were reported during the quarter. There were no employees reported to be on light duty and were no reported lost-time accidents during the quarter. There was only one OSHA reportable accident for the fiscal year which occurred in December 2008.

Monthly safety meetings were conducted by HazMat, Inc, the Metro Fire Department and the CEPS Safety Director.

Additional audio alarms (horns) were installed on the refrigerant alarm system around the pumps, boilers and chillers during June.

D. Personnel

The EGF currently has twenty-six full time employees. These individuals are employed by CEPS. Of the current number of employees, nineteen were previously employed by Nashville Thermal Transfer Corporation. There were no personnel changes during the quarter.

E. Training

Staff training for this quarter consisted of the Health and Safety training discussed previously.

F. Water Treatment

The water treatment program consists of regular testing and monitoring of the water chemistry in the steam, chilled water and condensing water systems. Chemicals are added to control the water hardness, chlorine levels and biologicals. Remote testing of the condensate at the AA Birch, Tennessee Tower and the Andrew Jackson also occurs regularly to monitor the concentration and distribution of the steam system chemicals.

- Steam System
 - The city water make-up conductivity was consistently reported as being acceptable throughout the quarter. However, the chlorine levels were reported high on several occasions, but the sulfite injection system appears to be controlling chlorine levels prior to boilers.
 - The neutralizing amine auto-feed controller was installed and programmed during June. This controller will require additional tuning that may require higher steam loads to accomplish accurately.
- Condensing Water System
 - The conductivity of the condensing water continues to be normal with only a few excursions resulting in high cycles of concentration and low blowdown rates.
- Chilled Water System
 - The system control and chemistry continues to be excellent.

G. Maintenance and EGF Repairs

CNDE continues to report on the numerous routine maintenance and preventive maintenance activities performed on the EGF primary and ancillary equipment. The principle items are discussed herein as they relate to the repair, maintenance or replacement of equipment or devices at the facility and are not considered extraordinary. The cost for these items is included as part of the FOC's.

- A leak was repaired on the boiler #1 steam blanket.
- The chilled water coupon station was moved from the control room level to the chiller plant level.
- Valves and additional piping was installed on the chemical pumps to ensure that the pressure is relieved when maintenance is performed on this equipment.
- The blowdown valves on boilers #1 and #3 were repaired during the quarter.
- Other minor repairs and maintenance were made during the quarter and are listed in the monthly reports issued by CEPS

H. EGF Walk-through

A quarterly Walk-through of the EGF was performed on June 25, 2009, by Kevin Jacobs, P.E. of TEG. This review involved a tour of the facility with the primary points of interest and concern noted herein.

- A few lights were found non-operational in the chiller plant.
- Numerous minor cracks in the outside concrete walls remain. No additional work has been performed on these cracks. No action is required at this time.

- Empty boxes, florescent bulbs and paint are being stored in the electrical room. This item was noted in the previous quarter's walk-through.

IV. Capital Projects

The Capital Projects discussed in this section are those projects funded through the issuance of bonds by Metro. As of the end of the Fourth Quarter, no funds have been appropriated for FY09. Due to construction projects being undertaken by other Metro departments within the city, and their impact to DES planned projects, TEG has re-prioritized the remaining FY08 projects and planned FY09 projects. Costs for these projects will be paid from funds already appropriated.

The status of the projects are discussed, and the project cost-to-date and bond balances are also presented.

A. Fourth Quarter FY09 Open Projects

The following projects remained open at the end of the Fourth Quarter of FY09.

1. DES033 - Manhole Lid and Ring Replacement/Restoration

This project relates to the repair and replacement of manhole lids and rings whenever Metro Public Works performs street re-paving. No work was reported for this project during the Fourth Quarter FY09. This project will remain open.

2. DES041 - Symphony Condensate Repair (Updated to DES054)

This project was bid during the end of the Fourth Quarter FY08/early First Quarter FY09. Construction began in the First Quarter FY09 and was substantially completed during the Second Quarter FY09. Accurate and complete close-out documentation for this project has been difficult to obtain. This process is continuing, and final close-out of this project is now expected to take place during the First Quarter FY10.

3. DES044 - MH 5 to MH 9 Condensate Line Replacement

The condensate line between Manholes 5 and 9, located along 5th Avenue between Deaderick and Union Streets, has been isolated due to its poor condition. This segment of condensate line represents a portion of the "main condensate loop" within the downtown distribution system. The replacement of this section of the condensate return system provides redundancy to enable the return of condensate to the plant from two directions, thus improving the reliability of the system.

During the Second Quarter, DES became aware of the Department of Public Works' Streetscape project for Deaderick Street. This Streetscape Project involves the refurbishment and revitalization of the Streetscape along Deaderick Street between 3rd Avenue North and 6th Avenue North. This Streetscape Project began construction during the Second Quarter FY09. Because a significant portion of the condensate line between MH 5 and MH 9 falls within the boundaries of the Streetscape Project, DES had to perform the design, bidding and award this project during the Second Quarter FY09. Scope changes involving the replacement of a leaking steam valve, the replacement of an expansion joint and the repair of a manway was added to this project. Completion of the portion of this project within the boundaries of the Streetscape Project were completed during the Third Quarter FY09. The work outside the Streetscape boundaries was substantially completed during the Fourth Quarter FY09. The close-out of this project has been on-going and is expected to be complete during the First Quarter FY10.

4. DES0441 - Modification of Manhole 9

During the design/construction process of the Deaderick Street Streetscape project, it was discovered that the manway entry into Manhole 9 was going to be in the gutter of the redesigned streetscape. This positioning would direct a large quantity of surface water into Manhole 9 during periods of rain which would be unacceptable. Therefore, the scope of the DES projects within the Deaderick Street Streetscape boundaries were expanded to accommodate the physical enlargement of Manhole 9 permitting the relocation of the manways. Construction of this project began in the Third Quarter FY09 and was substantially complete in the early part of the Fourth Quarter FY09. Close-out documentation is still being reviewed, and it is expected that this project will be closed out during the First Quarter FY10.

5. DES046 - Ryman Auditorium Condensate Line

The condensate service line from the Ryman Auditorium to the main return line in 4th Avenue was initially found to be in very poor condition and was been isolated. During the isolation, the condensate was being tempered with city water inside the Ryman Auditorium and then discharged to the Ryman's sewer system. Based on bids received on this project, an adequate capital return existed for the replacement of the condensate piping. Therefore, work began and was substantially completed on this project during the Fourth Quarter FY 09. Close-out documentation is being prepared to be submitted for review, and it is expected that this project will be closed-out during the First Quarter FY10.

6. DES048 - Tunnel Lighting & Electrical Upgrades Phase III

The lighting and some of the electrical system located in the Broadway, 4th Avenue and 7th Avenue distribution tunnels were found to be in poor condition and presented a potential safety hazard to maintenance personnel. Therefore, a plan was developed to repair and replace the lighting and some electrical components in three phases over a three year period. The first two phases of this project have been completed, and the final phase is budgeted and scheduled to be replaced during FY10.

However, the sections of the tunnel system, which this third phase addresses, have experienced some structural degradation. Therefore, CNDE evaluated the structural aspects of these tunnel sections through a third-party consultant. This third party consultant's evaluation report was completed during the First Quarter FY09. This report was reviewed by both CNDE and TEG during the Second Quarter FY09. TEG retained a structural engineer to review this report and a tour of the tunnel was conducted during the Fourth Quarter FY09. As a result of this review/tour, the structural engineer has presented a report with recommendations on how to proceed with needed tunnel repairs. Once these necessary repairs have been completed to the tunnel, this third phase of the lighting and electrical upgrades will proceed.

7. DES050 - Manhole & Tunnel Insulation Repair

Insulation in several of the manholes and some portions of the tunnels have been found to be in disrepair. Not only does this present a safety hazard to personnel, but it can also cause damage to manhole equipment, components and the manhole structure. The required work within these manholes has been prioritized, and a standard insulation specification has been completed. The receipt of bids for the repair and replacement of insulation in the higher priority manholes began during the Third Quarter FY08.

TEG and CEPS personnel will review and re-prioritize the remaining manholes on the list, and it is anticipated that additional manholes will be re-insulated during the First Quarter FY10. The work associated with this project will be ongoing as required.

8. DES051 - Expansion Joint Replacement - 4th Ave Tunnel

It has been determined that this project qualifies as a Repair & Improvement project and not a capital project. Therefore, funding for this project will originate from the R&I account.

A new expansion joint was ordered during the Second Quarter FY09 with it was delivered during the Third Quarter FY09. Due to other higher priority projects, design drawings for the installation of this expansion joint were delayed until the Fourth Quarter FY09. Drawings were completed during the Fourth Quarter FY09 and bids will be received during the initial weeks of the First Quarter FY10. It is planned that the work will be awarded and completed during the First Quarter FY10.

9. DES053 - EDS Tunnel Structural Evaluation, Mapping & Rehabilitation

The tunnels underneath Broadway, 4th Avenue and 7th Avenue have experienced some structural degradation primarily due to the geology of the area and groundwater infiltration. Some prior structural degradation occurred in these tunnels and repairs were made. CNDE retained the same third party consultant that participated in the prior repairs to evaluate and “map” the tunnels to prioritize the structural degradation of these tunnels. This third party consultant’s evaluation report was completed early in the First Quarter FY09 was reviewed by both CNDE and TEG during the Second Quarter FY09. Even though there is not a concern regarding the collapse of any tunnel section, the report indicated that approximately 1,000 feet of the tunnels should have a high priority ranking to repair and mitigate the dislodged rock areas.

TEG retained a structural engineer to review this report and an on-site review of the tunnel was performed during the Fourth Quarter FY09. After this review, the structural engineer presented a report with recommendations to proceed with the repair of approximately 2,000 feet total of Broadway, 4th Avenue and 7th Avenue tunnels. TEG is awaiting a proposal for the design of the repairs needed for these tunnels.

10. DES055 - Rebuild of Manhole “C”

This manhole was rebuilt during the Second Quarter FY09. A final walk through was conducted during the Third Quarter FY09. Due to incomplete close-out documentation and cost substantiation of scope changes, the finalization of the close-out documentation for this project was delayed into the Fourth Quarter FY09. It is expected that this project will be closed out during the First Quarter FY10.

11. DES056 - Steam Repair and Condensate Replacement
Manhole 11 to Citizen’s Plaza

During the Second Quarter, DES became aware of the Department of Public Works’ Streetscape project for Deaderick Street. This Streetscape Project involves the refurbishment and revitalization of the Streetscape along Deaderick Street between 3rd Avenue North and 6th Avenue North. This Streetscape Project began construction

during the Second Quarter FY09. The steam and condensate service piping to the Citizen's Plaza had been identified by thermographic imaging as needing repair/replacement and since this piping falls within the boundaries of the Streetscape Project, DES had to perform the design, bidding and award this project during the Second Quarter FY09. Completion of this project was completed during the Third Quarter FY09. The close-out of this project has been on-going and is expected to be complete during the First Quarter FY10.

12. DES057 - Steam & Condensate Valve Replacement: Manhole 13 - Phase I

A 16" main steam valve and an 8" main condensate valve in Manhole 13 have small leaks. These leaks have been repaired on numerous occasions and the valves cannot be further repaired. The existing manhole manway is not large enough to allow for a replacement 16" valve to be brought into the manhole. In addition, this manhole is within the boundaries of the Deaderick Street Streetscape Project. Therefore, Phase I of this project, the replacement of the existing manway with a larger opening, was bid and awarded at the end of the Second Quarter FY09. Work on this project was started and completed during the Third Quarter FY09. The second phase of this project, the replacement of the two valves in question, was completed during a system shutdown in the Fourth Quarter FY09. Close-out of this project is now expected during the First Quarter FY10.

B. Fourth Quarter FY09 Closed Projects

There were no projects closed during the Fourth Quarter FY09.

C. Capital Projects Budget

The following table summarizes the costs and remaining balance of the DES capital projects based on reported expenditures at the end of the Fourth Quarter FY09. Open projects or completed projects that require some additional management are shown. Projects that were closed to date are shown with a gray highlight. The total, historic budget and expenditures of the 2002A Bond are not shown; the values shown only reflect the more recent projects and expenditures with the remaining project balance.

Table 5. FY09 Capital Project and Bond Summary to Date

DES Project #	Description	Total Budget	Total Spent to Date	Remaining Balance
2002A Bond Projects				
	Total Closed Projects	\$ 3,727,702.59	\$ 3,727,702.59	\$ -
	Total 2002A Bond	\$ 3,727,702.59	\$ 3,727,702.59	\$ -
2005B Bond Projects				
DES020	Renaissance Decoupling	\$ 538,818.00	\$ 593,478.75	\$ (54,660.75)
DES004, 021, 022	Customer Metering	\$ 1,676,439.40	\$ 1,861,585.87	\$ (185,146.47)
DES050	MH & Tunnel Insul Repair	\$ -	\$ 27,080.30	\$ (27,080.30)
	Total Closed Projects	\$ 5,105,044.00	\$ 4,885,176.90	\$ 560.00
	Project Development	\$ 866,198.60	\$ 271,942.54	\$ 550,628.34
	Total 2005B Bond	\$ 8,186,500.00	\$ 7,920,089.76	\$ 266,410.24
2007 Bond Projects				
	Total Closed Projects	\$ 2,374,348.00	\$ 2,620,770.53	\$ (246,422.53)
	Project Development	\$ 484,152.00	\$ -	\$ 484,152.00
	Total 2007 Bond	\$ 2,858,500.00	\$ 2,620,770.53	\$ 237,729.47
2008 Bond Projects				
DES044	MH 5 to MH 9 Cond Line	\$ 550,000.00	\$ 68,390.56	\$ 481,609.44
DES046	Ryman Auditorium Cond Line	\$ 150,000.00	\$ 31,206.33	\$ 118,793.67
DES048	Tunnel Lighting & Elec Ph III	\$ 90,000.00	\$ -	\$ 90,000.00
DES050	MH & Tunnel Insul Repair	\$ 100,000.00	\$ 66,903.60	\$ 33,096.40
DES051	Exp Jt Replacement 4th Ave At MH 17	\$ 220,000.00	\$ 4,775.56	\$ 215,224.44
DES052	Wildhorse Stm & Cond	\$ 130,000.00	\$ 64,226.11	\$ 65,773.89
DES053	Tunnel Mapping	\$ 37,606.80	\$ 50,286.63	\$ (12,679.83)
DES054	Symphony Condensate	\$ 925,036.00	\$ 917,374.19	\$ 7,661.81
DES055	Manhole C Rebuild	\$ 225,000.00	\$ 307,846.45	\$ (82,846.45)
DES056	Citizen's Plaza Steam and Condensate	\$ -	\$ 15,965.36	\$ (15,965.36)
DES057	Manhole 13	\$ -	\$ 15,175.60	\$ (15,175.60)
DES063	Sump Pump MH B and M	\$ -	\$ 5,070.36	\$ (5,070.36)
DES064	Spring 09 Steam Shutdown	\$ -	\$ 10,416.38	\$ (10,416.38)
	Total Closed Projects	\$ 1,118,500.00	\$ 33,609.71	\$ 9,849.78
	Metro Project Admin	\$ -	\$ -	\$ -
	Project Man, Development, etc	\$ 352,393.20	\$ -	\$ 352,393.20
	Total 2008 Bond	\$ 2,748,500.00	\$ 1,716,622.07	\$ 1,031,877.93

V. Energy Distribution System Repairs, Improvements, PM and Emergencies

Several EDS repairs and improvements were made during the Fourth Quarter. The principle items for discussion are presented in the following sections.

A. Repairs and Improvements

Several repairs were made to the EDS and at customer buildings during the quarter. The items listed herein fall outside the scope of the DES Capital Projects. The remaining value of the R&I budget at the end of the Fourth Quarter FY09 is \$458,936. Table 6 provides a summary of the FY09 expenditures and revenues associated with the R&I budget.

Table 6. Repair and Improvement Expenditure and Revenue Summary to Date

Description	Date	Tracking #	Vendor	Expenditure	Transfers	Net Market Adjustment	Market Value	Balance
"Market Value" and "Cost Value" at end of FY08						\$ (526.25)	\$ 357,208.12	\$ 356,620.76
Manhole B2,B3, B4, and 4th Avenue Tunnel Vent for period of 6/29/08 - 8/02/08	08/12/08	DES-879	TEG	\$ 1,843.03				
Manhole B2,B3, B4, Expansion Joint Replacement and 4th Avenue Tunnel Vent for period of 8/3/08 - 8/30/08	09/08/08	DES-891	TEG	\$ 34.48				
Sub-Total First Quarter FY09				\$ 1,877.51	\$ 59,972.49	\$ (22.93)	\$ 58,072.05	\$ 58,094.98
4th Avenue Tunnel Vent for period of 9/1/08-9/27/08	10/14/08	DES-901	TEG	\$ 617.50				
Various repairs-to manholes B3 and B4-8/1/08 - 8/31/08	10/14/08	DES-910	CEPS	\$ 1,262.04				
4th Avenue Tunnel Vent for period of 9/28/08 - 10/25/08	11/12/08	DES-912	TEG	\$ 108.00				
Chemical Treatment 10/1/08 - 10/31/08	11/25/08	DES-923	CEPS	\$ 3,756.99				
4th Avenue Tunnel Vent for period of 10/26/08 - 11/29/08	12/10/08	DES-927	TEG	\$ 54.00				
Constellation Energy Source - US Engineering Invoice 7/27/2007 (R&I) - Steam Outage	12/18/08	DES-934	CEPS	\$ 16,264.00				
Sub-Total Second Quarter FY09				\$ 22,062.53	\$ 59,972.49	\$ (226.54)	\$ 37,683.42	\$ 37,909.96
EDS CHW Emergency 2007	01/23/09	DES-938	CEPS	\$ 28,737.48				
Repairs at MH-18, MH-10, MH-13, MH-23, Gay Street, AA Birch MH, MH-K and On-line steam	1/28/2009	DES-949	CEPS	\$ 5,692.06				
DES-036 4th Avenue Tunnel Ventilation Fan Repair	2/5/2009	DES-953	CEPS	\$ 42,092.97				
4th Avenue Tunnel Vent for period of 11/30/08 - 12/31/08	1/1/2009	DES-959	TEG	\$ 170.55				
EDS Repair & Escrow 1/1/09-1/31/09	2/20/2009	DES-969	CEPS	\$ 3,195.21				
Manhole B4 - City Water Leak	2/20/2009	DES-966	CEPS	\$ 4,240.78				
Manhole K - Install Hot Tap	2/20/2009	DES-967	CEPS	\$ 1,450.00				
Manhole K - Excavation R & I (final)	3/18/2009	DES-989	CEPS	\$ 2,784.00				
EDS Repair & Escrow 2/1/09-2/28/09	3/18/2009	DES-987	CEPS	\$ 503.18				
EDS Quarterly Review for period of 1/01/09 - 2/28/09	3/18/2009	DES-972	TEG	\$ 9,336.53				
Sub-Total Third Quarter FY09				\$ 98,202.76	\$ 59,972.49	\$ (293.32)	\$ (38,523.59)	\$ (38,230.27)
EDS Repair & Escrow 3/1/09-3/31/09	4/13/2009	DES-1001	CEPS	\$ 3,179.67				
DES Repair And Improvements, for billing period of 3/1/09 - 5/30/09	6/9/2009	DES-1012	TEG	\$ 795.90				
Constellation Energy - Period 4/1/09 - 4/30/09 (EDS Repair)	6/9/2009	DES-1013	CEPS	\$ 607.57				
DES Repair And Improvements, for billing period of June 2009	7/14/2009	DES-?	TEG	\$ 824.33				
Constellation Energy - 4th Avenue Progress Billing	6/23/2009	DES-?	CEPS	\$ 7,852.37				
Constellation Energy - Period 5/1/09 - 5/31/09 (EDS Repair)	?	DES-?	CEPS	\$ 2,172.12				
Sub-Total Fourth Quarter FY09				\$ 15,431.96	\$ 59,972.49	\$ (37.21)	\$ 44,503.32	\$ 44,540.53
FY 09 Year to Date				\$ 137,574.76	\$ 239,889.96	\$ (580.00)	\$ 458,943.32	\$ 458,935.96

B. Preventive Maintenance

Preventive maintenance, tunnel and manhole inspections and reviews of customers' mechanical rooms were performed during the quarter. The principle items for discussion are presented.

- EDS Tunnel and Manhole Inspections:
 - Rock continues to be in need of repair in the ceilings in the tunnels under Broadway and 7th Avenues.
 - Several leaks were found and repaired during the quarter.
 - Minor repairs were made during the quarter.
- State Tunnel Inspections:
 - Several leaks were found and repaired during the quarter.
 - Other minor repairs were made during the quarter.
- The chilled water leak in MH M was monitored regularly during the quarter, and the vault was pumped as required.
- The thermographic survey conducted on June 19 revealed one new hot spot at 1st Ave North and Molloy Street.
- The steam service at several customers were isolated during the quarter at the request of the customer.
- Several traps were replaced throughout the system.
- Other minor items are included in the CNDE monthly reports.

C. Emergencies

CNDE did not report any emergencies with the EDS during the quarter. The failure of the buried anchor outside of MH K was not considered an emergency but did require the immediate attention of CNDE personnel. The repair was made with the assistance of TEG expeditiously with minimal disruption to the customers.

D. EDS Walk-through

The primary EDS walkthrough was conducted on June 24 - 25, 2009 by Jon Belcher, P.E. of TEG. The manholes visited this quarter include 6A, 12, 13, 18A, 23, B, D, K, N1 and N2. The following comments and observations are a result of these visits:

1. Manhole 6A
 - a. This “manhole” consists of two valve boxes. One valve box houses the steam and condensate service valves for the Hermitage Hotel; the other valve box houses the chilled water supply and return service valves for the Hermitage Hotel.
 - b. The valve box which houses the steam and condensate service valves for the Hermitage Hotel was included in the work performed during the Spring system shut down. The existing flanged steam valve was leaking and was replaced with a butt welded valve. In addition, both the steam and condensate lines were insulated.

- c. The access ladders into both of these valve boxes are not effective and personnel can not gain access into the valve boxes without a ladder.
 - d. It is the intent to eliminate both of these valve boxes with the construction of a shallow bury condensate return line between MH 6 and MH 23 in FY10.
2. Manhole 13
- a. Manhole 13 was included in the work performed during the Spring system shut down. The 16" main steam valve and the 8" main condensate valve are flanged valves and have leaked repeatedly over the years. Attempts to fix the recent leaks were unsuccessful. Therefore, as part of DES 057, Phase II, these two valves were replaced with butt welded valves.
 - b. When the Spring shutdown work was performed in this manhole, a leak developed on a downstream steam valve. This was noted in a punchlist for the Spring shutdown work and should be repaired.
 - c. The steel structural components in the vault need to be cleaned of all rust and painted to prevent further corrosion; some components require replacement. There is some severe spalling of the concrete in this vault. This vault should be included in the capital project to repair and prevent structural corrosion.
3. Manhole 18A
- a. There was water present in the manhole. In review of a CEPS monthly manhole inspection sheet, this manhole is not listed as being reviewed on a monthly basis. This manhole should be included in the monthly inspections, and the water should be pumped out on a regular basis.
 - b. Water hammer occurs whenever the trap discharges; this should be investigated and a solution developed to prevent this phenomenon.
4. Manhole 23
- a. There was a flanged steam valve in this manhole which services the Tennessee Tower which had experienced numerous leaks. This valve was replaced with a butt welded valve during the Spring 2009 system shutdown.
 - b. There is a small leak on a slip type expansion joint that should be repaired.
 - c. There are some debris and construction material in this vault remaining from the Spring shutdown work that needs to be removed. This was noted in the punchlist for the Spring shutdown.

- d. There is some minor insulation degradation and damage in this manhole. This manhole is listed on the Manhole Insulation priority list developed by Constellation as a “low” priority and as funds are made available, needed repairs should be made.
 - e. The steel structural components in the vault have experienced some corrosion. This vault should be included in the capital project to repair and prevent structural corrosion.
5. Manhole B - Chilled Water Side
- a. There was a flanged steam valve in this manhole which services the Malloy Street main which had experienced numerous leaks. This valve was replaced with a butt welded valve during the Spring 2009 system shutdown.
 - b. There is some minor debris remaining from the valve replacement which needs to be cleaned.
6. Manhole D
- a. Water hammer has been reported in prior manhole review reports for this manhole. From prior observations the hammer was originating outside of the manhole. It is reported that the trap in Parkway Towers was the cause, and it was replaced. Water hammer is still present in the manhole, and now appears to coincide with the discharge of the trap station in the manhole. The trap should be checked to make sure that it is functioning properly, and the installation of a sparge station should be investigated for this manhole.
 - b. All of the steel structural components in the vault need to be cleaned of all rust and painted to prevent further corrosion. Some corrosion is severe. This vault should be included in the capital project to repair and prevent structural corrosion.
7. Manhole K
- a. Work was conducted in this manhole during the Spring shutdown which involved the removal of piping in order to isolate the manholes north of K which are not presently in use. There is some minor debris related to this work that needs to be removed. This was noted in a punchlist for the Spring shutdown.
 - b. There is an original manhole located underneath Manhole K which was isolated as part of the work during the Spring shutdown. Part of this isolation included the filling of the isolated piping and manways with flowable fill. Additional flowable fill needs to be added to these manways and pipes. This was noted on a punchlist for the Spring shutdown.

- c. The access ladder in this manhole is the type which the rungs are embedded in the manhole concrete wall. From experience, these types of ladders are prone to breaking off of the wall “without warning”. This ladder should be replaced with a “stand-alone” steel ladder to ensure worker safety.
- d. There is a significant amount of insulation in this manhole which is absent due to recent work or from deterioration. This manhole is listed on the Manhole Insulation priority list developed by Constellation as a “moderate” priority.

VI. Customer Relations

This section contains descriptions of the marketing efforts made by the DES Team during the quarter. The topics of interactions, meetings and training seminars with the customers are also discussed. There are currently 27 customers, comprised of 40 different buildings, connected to the EDS. Service to each of these buildings continues to prove satisfactory, and the responsiveness to customer issues is handled by CNDE in an excellent and professional manner.

A. Marketing

- TEG and Metro DES continue to monitor and remain involved with the progress associated with the development of the New Convention Center.
- The Metro Council approved the purchase of the land for the New Convention Center and has selected a developer and contractor for the project.
- The Spring Newsletter was issued on May 22.

B. Customer Interaction

- Several customers reported issues with either their in-building heating or cooling systems. These issues were addressed by the CNDE CSR. In most cases, the issues related to failed customer equipment or the improper control of the building system.
- The War Memorial requested that their chilled water return set point be lowered from 54°F to 48°F.
- The Hermitage Hotel notified the CSR that they were installing back-up domestic water heaters to serve their customers during EDS steam outages.
- TEG and CNDE met with representatives from the Wachovia Plaza to discuss the requirements for lowering their contract chilled water and steam demands.
- A PRV at Tennessee Tower was found to be working improperly which caused their steam consumption to be slightly higher than normal. The building personnel repaired the PRV.
- The Viridian Towers requested that their chilled water return set point be raised from 48°F to 54°F as a result of recent upgrades to their in-building system.

- The CJC continues to have cooling problems. They requested that their chilled water return set point be lowered from 54°F to 48°F.
- The Renaissance Hotel is operating very well, but requested that their chilled water return set point be lowered to 52°F. This value is still greater than their contract value.
- TEG and CNDE met with Metro Library personnel in June to discuss ways that they can better operate their in-building heating and cooling system. The recommended changes were implemented, and the building is operating much more efficiently and without reported issues.
- All service to the 401 Union building was terminated due to lack of payment.
- Previously recommended operational changes at the Tennessee Tower chilled water system were implemented in June due to persistent flow and cooling problems.
- Other minor issues and customer interactions are noted in the monthly CNDE reports.

VII. Recommendations

Based on the review of the Fourth Quarter EGF and EDS operations, the following recommendations are made.

- As mentioned in previous reports, further investigation is recommended regarding the addition of automated O₂-trim to the boilers. This increase in automation may increase the fuel efficiency of the boilers and may have a relatively short return on investment. TEG will begin the investigation of the economic benefit related to this modification during the fiscal year. Only the customers receive the economic benefit for this investment, thus funding for such projects should be the responsibility of the customers.
- Due to the apparent soil erosion on the west face of the EGF, CNDE should determine if the terrain on the west side of the EGF needs regrading to prevent rainwater from flowing into and under the foundation wall. These repairs could help prevent further settling of the foundation and soil erosion.
- Cleaning, painting, replacement and repair of structural steel within manholes to reduce or eliminate corrosion has been assigned a capital project number of DES061. Due to higher priority projects, repairs are anticipated to begin during the First Quarter FY10 and will be ongoing in a similar method to the Insulation Repair Project (DES050).
- Insulation which is not present or in disrepair within the manholes needs to be addressed through either additional capital projects, which include work within these manholes, or through DES050.
- CNDE should continue to remove any debris present in the manholes and tunnels as inspections and schedules allow.